

IN THE CLAIMS:

1. (Currently Amended): A network topology backplane bus architecture comprising:
four independent data communication lines;
a plurality of processing nodes sharing said independent data communication lines for data communication;
one or more of said processing nodes associated with a first enclosure being normally connected for transmitting on ~~only a~~ first and second of said data communication lines and being normally connected for receiving on all of said data communication lines, wherein the one or more of said processing nodes associated with a first enclosure does not transmit on third and fourth of said data communication lines; and
one or more other processing nodes associated with a second enclosure being normally connected for transmitting on ~~only a~~ third and fourth of said data lines and being normally connected for receiving on all of said data lines, wherein the one or more of said other processing nodes associated with a second enclosure does not transmit on the first and second data communication lines.
2. (Previously Presented): The network topology backplane bus architecture recited in claim 1, wherein the first and third independent data communication lines comprise a first independent data communication network and the second and fourth independent data communication lines comprise a second independent data communication network.
3. (Canceled)
4. (Previously Presented): The network topology backplane bus architecture recited in claim 1, wherein said processing nodes associated with the first enclosure utilize at least one of

said first and second data communication lines for local communication with other nodes associated with the first enclosure.

5. (Previously Presented): The network topology backplane bus architecture recited in claim 4, wherein said processing nodes associated with the first enclosure utilize at least one of said first and second data communication lines for broadcasting transmissions to processing nodes associated with the second enclosure.

6-8. (Canceled)

9. (Previously Presented): The network topology backplane bus architecture recited in claim 5, wherein each of plurality of processing nodes associated with the first enclosure time-shares at least one of said first and second data communication lines with the other processing nodes associated with the first enclosure.

10. (Previously Presented): The network topology backplane bus architecture recited in claim 9, wherein timesharing said data communication lines is synchronized.

11. (Previously Presented): The network topology backplane bus architecture recited in claim 5, wherein said processing nodes associated with the second enclosure utilize at least one of said third and fourth data communication lines for local communication with other nodes associated with the first enclosure.

12. (Previously Presented): The network topology backplane bus architecture recited in claim 11, wherein said processing nodes associated with the second enclosure utilize at least one of said third and fourth data communication lines for broadcasting transmissions to processing nodes associated with the first enclosure.

13. (Original): The network topology backplane bus architecture recited in claim 12, wherein ones of said processing nodes supports different ones of flight critical functions.

14. (Original): The network topology backplane bus architecture recited in claim 13, wherein one or more of said processing nodes supporting one of said flight critical functions is duplicated in one or more additional ones of said processing nodes.

15. (Previously Presented): The network topology backplane bus architecture recited in claim 14, wherein one of said processing nodes supporting said one of said flight critical functions is located in the first enclosure; and at least one of said additional processing nodes supporting said one of said flight critical functions is located in the second enclosure.

16-29. (Canceled)

30. (Currently Amended): A method of sharing independent data communication lines for fault tolerant data communication among a plurality of processing nodes, the method comprising:

permitting one or more first processing nodes transmitting privileges on a first and a second data communication lines;

permitting one or more second processing nodes transmitting privileges on a third and a fourth data communication lines; and

providing all the nodes receiving privileges on all of the data communication lines,

wherein the transmitting privileges are not permitted for the one or more first processing nodes on the first and second data communication lines and the transmitting privileges are not permitted for the one or more second processing nodes on the third and fourth data communication lines.

31-34. (Canceled)